

Summary of *E. coli* Test Procedures, 40 CFR Part 136

This regulation, which became effective on August 20, 2003, outlines various test methods to analyze four (4) pathogens, including *E. coli*, in ambient water matrices. The primary purpose of the regulation is to outline test methods to fulfill the CWA's mandate to maintain "fishable and swimmable" waters. To accomplish this, EPA has developed water quality criteria based on a scientific assessment of the relationship between pollutant concentrations and human health effects.

As background, it is important to note that "Ambient Waters" refers to any fresh, marine, or estuarine surface water used for recreation, propagation of fish, shellfish, or wildlife, agriculture, industry, navigation, or as a source water for drinking water facilities. Ambient water quality criteria become enforceable water quality standards when adopted by the State and approved by EPA. Thus, and importantly for our purposes, these ambient water quality criteria are only triggered if a State requires such monitoring. These criteria appear to have limited applicability in the NPDES arena. For example, some Indiana NPDES permit holders (communities with combined sewer overflows) are or have been required to monitor ambient waters as part of their Stream Reach Characterization and Evaluation Report and Long Term Control Plan development. These methods nonetheless have applicability in other parts of IDEM's OWQ, including the TMDL section. The TMDL staff must follow the EPA approved testing methods as outlined in this regulation.

For our purposes, it's important to also note, NPDES permittees will only be affected by the promulgation of these ambient methods where the permit specifies ambient monitoring requirements for the specified parameters. Interestingly, EPA noted in its Response to Public Comments that it is in the process of validating methods for the analysis of *E. coli* in wastewater and plans to propose test methods for these bacterial indicators by the end of 2004. EPA's present regulations do not require monitoring of ambient water conditions. EPA repeated this remark when it stated that since the methods in this regulation were not validated for wastewater, they are not intended for use in that matrix. Instead, EPA recommends that these test methods should only be used for testing ambient waters.

At the same, it does not preclude a regulatory agency like IDEM from approving one of these test methods for the testing of *E. coli* in wastewater effluent. IDEM has approved the use of some of these test methods for wastewater effluent. For example, the following is an excerpt of typical NPDES permit requirements for *E. coli* for wastewater effluent:

IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli* (*E. coli*):

1. Coliscan MF7 Method
2. EPA Method 1103.1 using original m-TEC agar.
3. EPA revised Method 1103.1 using modified m-TEC agar.
4. *Standard Methods* 20th Edition Method 9223 B using Colilert7 - for use of this procedure, an initial comparison study must be conducted between Colilert7 and an approved membrane filtration method. This comparison study must be approved by IDEM before this method can be used by the permittee.

If EPA has approved standardized testing procedures for a given pollutant, like *E. coli*, the NPDES permitting authority (IDEM) must specify one of the approved testing procedures or an approved alternate test procedure for the measurements required under the permit.

This regulation outlines four general approved biological methods in Table 1A. The test methods include variations of Most Probable Number sampling and Membrane Filter techniques.